

Claims

1. The use of copolymers comprising alkylene oxide units and comprising, in randomly or blockwise copolymerized form,

5

(a) 50 to 93 mol% of acrylic acid and/or a water-soluble salt of acrylic acid,

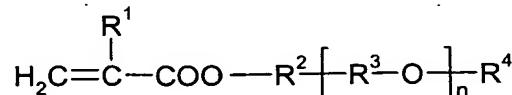
10

(b) 5 to 30 mol% of methacrylic acid and/or a water-soluble salt of methacrylic acid

and

(c) 2 to 20 mol% of at least one nonionic monomer of the formula I

15



in which the variables have the following meanings:

20

R^1 is hydrogen or methyl;

R^2 is a chemical bond or unbranched or branched $\text{C}_1\text{-C}_6$ -alkylene;

R^3 is identical or different unbranched or branched $\text{C}_2\text{-C}_4$ -alkylene radicals;

R^4 is unbranched or branched $\text{C}_1\text{-C}_6$ -alkyl;

n is 3 to 50,

25

as deposit-inhibiting additives in the rinsing cycle of a dishwasher.

30

2. The use according to claim 1, wherein the copolymers comprise 65 to 85 mol% of component (a), 10 to 25 mol% of component (b) and 5 to 15 mol% of component (c) in copolymerized form.

3. The use according to claim 1 or 2, wherein the copolymers comprise 65 to 75 mol% of component (a), 15 to 25 mol% of component (b) and 5 to 10 mol% of component (c) in copolymerized form.

35

4. The use according to claims 1 to 3, wherein the copolymers comprise, as component (c), a nonionic monomer of the formula I, in which R^1 is methyl, R^2 is a chemical bond, R^3 is $\text{C}_2\text{-C}_3$ -alkylene, R^4 is $\text{C}_1\text{-C}_2$ -alkyl and n is 5 to 40, in copolymerized form.

5. The use according to claims 1 to 4, wherein the copolymers comprise, as component (c), a nonionic monomer of the formula I, in which R¹ is methyl, R² is a chemical bond, R³ is ethylene, R⁴ is methyl and n is 10 to 30, in copolymerized form.
6. The use according to claims 1 to 5, wherein the copolymers comprise -SO₃⁻ Na⁺ and/or -SO₄⁻ Na⁺ as end groups.
- 10 7. The use according to claims 1 to 6, wherein the copolymers are used in rinse aids for dishwashers.
8. The use according to claims 1 to 6, wherein the copolymers are used in a form formulated into the rinse aid core of a detergent tablet for dishwashers.
- 15 9. A rinse aid for dishwashers which comprises copolymers according to claims 1 to 6 as deposit-inhibiting additive.
- 20 10. A detergent tablet for dishwashers which comprises copolymers according to claims 1 to 6 as deposit-inhibiting additive formulated into the rinse aid core.

Use of copolymers, containing alkylene oxide units, as deposit inhibitor additives in the rinsing process of a dishwasher

Abstract

5

Use of copolymers comprising alkylene oxide units and comprising, in randomly or blockwise copolymerized form,

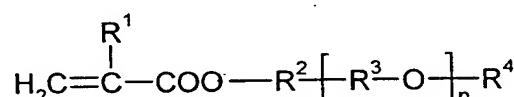
10

(a) 50 to 93 mol% of acrylic acid and/or a water-soluble salt of acrylic acid,
(b) 5 to 30 mol% of methacrylic acid and/or a water-soluble salt of methacrylic acid

and

15

(c) 2 to 20 mol% of at least one nonionic monomer of the formula I



I

in which the variables have the following meanings:

20

R¹ is hydrogen or methyl;
R² is a chemical bond or unbranched or branched C₁-C₆-alkylene;
R³ is identical or different unbranched or branched C₂-C₄-alkylene radicals;
R⁴ is unbranched or branched C₁-C₆-alkyl;
n is 3 to 50,

as deposit-inhibiting additives in the rinsing cycle of a dishwasher.